



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: George T. Chaney

Application No: 10/645,025

Filed: August 21, 2003

For: ELECTRIC VEHICLE CHASSIS WITH  
REMOVABLE BATTERY MODULE  
AND A METHOD FOR BATTERY  
MODULE REPLACEMENT

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Atty. Docket No: T-0101.03(Div)

Examiner: B. Avery

Group Art Unit: 3618

APPEAL BRIEF

MAIL STOP APPEAL BRIEF - PATENTS  
COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Applicant timely presents in triplicate its Brief on Appeal for the referenced application.

REAL PARTY IN INTEREST

The real party in interest is the inventor George T. Chaney, a citizen of the United States.

RELATED APPEALS AND INTERFERENCES

There are no related appeals and interferences of which Applicant is aware.

STATUS OF THE CLAIMS

Claims 25-27 and 29 remain in the referenced application. Claims 25-27 and 29 stand rejected under 35 U.S.C. §103(a) by Weaver et al. (U.S. Patent No. 3,760,770 - hereinafter referred to as Weaver) in view of Chase, Jr. (U.S. Patent No. 5,760,569 - hereinafter referred to as Chase).

## STATUS OF AMENDMENTS

Applicant's Preliminary Amendment dated April 26, 2004, has been entered into the referenced application. Applicant's Amendment "A" dated August 21, 2004, has been entered into the referenced application. Applicant's Amendment After Final dated January 13, 2005, will be entered upon the filing of this Appeal.

## SUMMARY OF THE INVENTION

The claimed invention is a method that provides a service facility for the repeated replacement of a battery module for an electric vehicle 1. The method in particular is implemented through the use of the electric vehicle 1 that solves vehicle weight problems currently experienced in existing electric vehicles. The electric vehicle 1 includes a chassis 5 or 50 consisting of a chassis front 6 and a chassis rear 7. In the chassis 5, the chassis front 6 and the chassis rear 7 connect to the body of the electric vehicle 1 and are only connected together by a single support member 8. In the chassis 50, the chassis front 6 and the chassis rear 7 are unitary pieces completely unconnected that are formed integrally with the body of the electric vehicle 1 to provide a unibody construction. The chassis 5 or 50 in either configuration defines a battery module compartment 25. In defining the battery module compartment 25, the chassis 5 or 50 lacks the structure typically included in a chassis. As such, the chassis 5 or 50 lacks the structural integrity necessary for an electric vehicle. The battery module compartment 25 accordingly receives a battery module 3 therein that integrates with the chassis 5 or 50 to provide the additional structural integrity required by the chassis 5 or 50 of the electric vehicle 1. The battery module 3 therefore completes the chassis 5 or 50, thereby providing the chassis 5 or 50 with the required structural integrity, while reducing the overall weight of the electric vehicle 1.

The electric vehicle 1, which includes a chassis 5 or 50 defining a battery module compartment 25 for receiving a battery module 3 that becomes integrated with the chassis 5 or 50, improves the effective range of the electric vehicle 1 by reducing vehicle weight. This increased effective range permits a service facility, whereby a customer entering a service facility with a depleted battery module 3 would have the depleted battery module 3 removed by a service technician and replaced with a battery module 3 including a fully charged battery 4. The service facility would include a plurality of battery modules 3, and a system for charging the battery modules 3. After removal, the depleted battery module 3 would be charged for use by another customer. Such a service would be similar to current gas stations, except, instead of paying for gas, the customer would pay a fee for the charged battery module, which, for example, could be based on the difference in charge between the depleted and charged battery modules 3 or simply be a flat rental type fee. The customer would drive the electric vehicle 1 until the depletion of the currently installed battery module 3, whereupon the customer would return to a service facility offering charged replacement battery modules 3.

#### ISSUE

Whether claims 25-27 and 29 are patentable under 35 U.S.C. §103(a) over Weaver in view of Chase.

#### GROUPINGS OF THE CLAIMS

Claim 27 stands alone and is considered separately patentable.

Claims 25, 26, and 29 stand and fall with claim 27.

## ARGUMENT

Claim 27 in the first step recites providing electric powered vehicles, wherein each electric powered vehicle includes a chassis defining a battery module compartment and a battery module insertable into the battery module compartment of the chassis, whereby the battery module completes the chassis upon insertion into the battery module compartment thereby providing the chassis with required structural integrity necessary to support the electric powered vehicle during travel. The chassis thus defines the battery module compartment, and the battery module compartment receives the battery module therein, which then becomes part of the chassis. The battery module accordingly integrates with the chassis and forms an actual part thereof in order to support the weight of the electric vehicle. This integration of the battery module with the chassis furnishes the chassis with required structural integrity, while reducing the overall weight of an electric powered vehicle.

In rejecting claim 27 over Weaver in view of Chase, the Examiner asserts Weaver discloses a battery module compartment for receiving a battery module that completes a chassis. Applicant disagrees with this assertion and respectfully submits there is absolutely no such disclosure in Weaver. Weaver discloses a battery powered feed cart 20 including a feed box 82 supported by an undercarriage 22. The undercarriage includes a pair of sidewalls 23 and 25 and supports an electric motor 30 that drives an axle 26 secured to the undercarriage 22. A battery drawer 164 located within the undercarriage 22 supports the batteries 186 that supply power for the electric motor 30. The battery drawer 164 includes a bottom 166 and generally upright end plates 172. A series of rollers 174 mount along the edges of the bottom 166. The undercarriage 22 includes guide rails 173 integral therewith that receive the rollers 174 thereon to support the battery drawer 164 within the undercarriage 22. In the closed position of the battery drawer 164,

the end plates 172 assume a coplanar relationship with the sidewalls 23 and 25 of the undercarriage 22.

Applicant respectfully submits Weaver in no way discloses, teaches, or suggests that the battery drawer 164 is necessary to complete the undercarriage 22 and thus provide the undercarriage 22 with required structural integrity. The undercarriage 22 is fully formed and capable of supporting the feed box 82 without the battery drawer 164. The only function of the battery drawer 164 is to hold thereon the batteries 186 that supply power to the electric motor 30. In particular, the guide rails 173 are formed in the undercarriage 22 for the sole purpose of supporting the battery drawer 164. The undercarriage 22 accordingly does not require the guide rails 173 to be considered complete with required structural integrity. Moreover, the battery drawer 164 is merely located within a separate compartment defined in the undercarriage 22 by the guide rails 173, and the end plates 172 merely form doors blocking access to the battery drawer 164. As such, the battery drawer 164 in no way completes the undercarriage 22 or provides the undercarriage 22 with structural integrity required for the undercarriage 22 to support the feed box 86. Applicant therefore respectfully submits Weaver in no way discloses that the battery drawer 164 completes the formation of the undercarriage 22, thereby providing the undercarriage 22 with required structural integrity.

The Examiner asserts Weaver in column 9, lines 37-43, does in fact disclose that the battery drawer 164 completes the formation of the undercarriage 22. Applicant respectfully disagrees. Weaver in column 9, lines 37-43, states the battery drawer 164 is centrally located within the undercarriage 22 in order to provide the feed cart 20 with a favorable center of gravity. Applicant respectfully contends that “center of gravity” in no way discloses the completion of a chassis with required structural integrity necessary to support an electric

powered vehicle during travel. “Center of gravity” relates to preventing the feed cart 20 from tipping over, whereas the completion of a chassis relates to reinforcing the chassis such that the chassis has the structural integrity necessary to withstand normal driving conditions. A desirable center of gravity merely centrally locates the battery drawer 164 to prevent the feed cart 20 from tipping over, which in no way discloses a battery module that completes a chassis upon insertion therein. Applicant again respectfully submits that Weaver simply does not disclose that the battery drawer 164 completes the formation of the undercarriage 22, thereby providing the undercarriage 22 with required structural integrity.

At this point, Applicant respectfully submits the Examiner’s rejection of claim 27 under 35 U.S.C. §103(a) over Weaver in view of Chase fails because, contrary to the Examiner’s assertion, Weaver in no way discloses a battery module that completes a chassis upon insertion therein to provide the chassis with required structural integrity necessary to support the electric powered vehicle during travel.

Applicant nevertheless further respectfully submits the modification of Weaver by Chase as suggested by the Examiner constitutes an improper hindsight reconstruction of Applicant’s invention because one of ordinary skill in the art would not modify Weaver by Chase absent Applicant’s disclosure. Weaver discloses a feed cart used on farms and ranches. Chase discloses an energy replenishment center that services electric passenger vehicles operated on public roadways. The modification of Weaver by Chase accordingly must locate an energy replenishment center on a farm or ranch because the Weaver feed cart is certainly not an electric passenger vehicle suitable for travel over public roadways. As such, Applicant respectfully contends one of ordinary skill in the art would not modify Weaver by Chase and locate an energy replenishment center on a farm or ranch because feed carts employed on a farm or ranch do not

require an energy replenishment center adapted to service electric passenger vehicles operated on public roadways. Consequently, the only motivation to modify Weaver by Chase exists in Applicant's disclosure, which constitutes an improper hindsight reconstruction of Applicant's invention.

In view of the foregoing, Applicant respectfully submits claim 27 is patentable over Weaver in view of Chase because Weaver fails to disclose Applicant's battery module that completes a chassis upon insertion therein to provide the chassis with required structural integrity necessary to support the electric powered vehicle during travel. Applicant further respectfully submits claim 27 is patentable over Weaver in view of Chase because the modification of Weaver by Chase as suggested by the Examiner constitutes an improper hindsight reconstruction of Applicant's invention. Applicant still further respectfully submits claims 25, 26, and 29 are patentable over Weaver in view of Chase based on the arguments set forth with respect to claim 27.

Applicant accordingly respectfully requests the Final Rejection of the Examiner dated November 29, 2004, be reversed.

Respectfully submitted,

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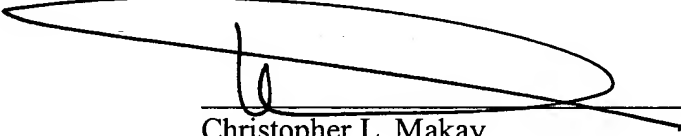
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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" Service under 37 C.F.R. §1.10 on the date indicated below, addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Express Mail No. EV 486463233 US Date: 24 March 2005

  
Christopher L. Makay



## APPENDIX

25. The method according to claim 29, wherein the step of inserting a fully charged battery module into the electric powered vehicle comprises:

sliding the battery module including a fully charged battery into the battery module compartment; and

closing the access door attached to the chassis to seal the battery module compartment.

26. The method according to claim 27, further comprising the step of recharging the depleted battery module.

27. A method of replacing a battery module of an electric powered vehicle, comprising:

providing electric powered vehicles, each electric powered vehicle, comprising:

a chassis defining a battery module compartment, and

a battery module insertable into the battery module compartment of the chassis,

whereby the battery module completes the chassis upon insertion into the battery module compartment thereby providing the chassis with required structural integrity necessary to support the electric powered vehicle during travel;

providing a service facility for the electric powered vehicles;

providing the service facility with a plurality of battery modules and a system for charging the battery modules;

opening the service facility to drivers owning the electric powered vehicles, whereby a driver having an electric powered vehicle with a depleted battery module enters the service facility;

removing the depleted battery module from the electric powered vehicle, thereby removing a portion of the chassis for the electric powered vehicle;

inserting a fully charged battery module into the electric powered vehicle, thereby completing the chassis of the electric powered vehicle and providing the chassis with required structural integrity necessary to support the electric powered vehicle during travel; and

charging the driver for the fully charged battery module.

29. The method according to claim 27, wherein the step of removing the depleted battery module from the electric powered vehicle comprises:

opening an access door attached to the chassis to expose the battery module compartment; and

sliding the depleted battery module from within the battery module compartment.